

Program Letter

Bureau of Petroleum Inspection and Storage Tank Regulation
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Overfill Protection Requirements for Secondary Containment Tanks

Since their inception and general acceptance by various regulatory and standard making organizations, secondary containment tanks have become increasingly more popular as an alternative system to meet the requirements of traditional secondary containment methods. This particular form of secondary containment has become acceptable, with certain provisions, in meeting specific Federal SPCC CFR 112 requirements.

Commerce Chapter 10 has recognized the double-walled tank configuration as a means of complying with secondary containment requirements. However, with the edition of Comm 10 effective August 1, 2002, the adopted 2000 edition of NFPA 30 more narrowly defines the appurtenance requirements to comply with secondary containment. Previous editions of both NFPA 30 and Comm 10, did not specify which type of appurtenance was required to meet the tank overfill protection requirement.

NFPA 30, 2.3.2.3 Control of Spills from Aboveground Tanks.

Every tank that contains a Class I, Class II, or Class IIIA liquid shall be provided with means to prevent an accidental release of liquid from endangering important facilities and adjoining property or from reaching waterways. Such means shall meet the requirements of 2.3.2.3.1, 2.3.2.3.2, or 2.3.2.3.3, whichever is applicable.

NFPA 30, 2.3.2.3.3 Secondary Containment Tanks.

Where a secondary containment tank is used to provide spill control, the tank shall meet all of the following requirements:

- (a) The capacity of the tank shall not exceed 12,000 gal (45,420 L).*
- (b) All piping connections to the tank shall be made above the normal maximum liquid level.*
- (c) Means shall be provided to prevent the release of liquid from the tank by siphon flow.*
- (d) Means shall be provided for determining the level of liquid in the tank. This means shall be accessible to the delivery operator.*
- (e) Means shall be provided to prevent overfilling by sounding an alarm when the liquid level in the tank reaches 90 percent of capacity **and** by automatically stopping delivery of liquid to the tank when the liquid level in the tank reaches 95 percent of capacity. In no case shall these provisions restrict or interfere with the proper functioning of the normal vent or the emergency vent.*
- (f) Spacing between adjacent tanks shall be not less than 3 ft (0.9 m).*
- (g) The tank shall be capable of resisting the damage from the impact of a motor vehicle or suitable collision barriers shall be provided.*
- (h) Where the means of secondary containment is enclosed, it shall be provided with emergency venting in accordance with 2.2.5.2.*
- (i) Means shall be provided to establish the integrity of the secondary containment, in accordance with 2.4.2.3 and 2.4.2.4. The secondary containment shall be designed to withstand the hydrostatic head resulting from a leak from the primary tank of the maximum amount of liquid that can be stored in the primary tank.*

The most notable language requirement is found in paragraph (e) of section 2.3.2.3.3, which appears in bold and underlined as noted above. With the inclusion of the word **and**, there appears to be little room for interpretation. An alarm system consists of an external-signaling device to provide an audible alarm to the delivery person and be located in close proximity to where the delivery person stands while filling the tank. An automatic shut-off device, is essentially a “flapper valve” or “drop-tube shut-off” device. While there are other options available to meet the requirement for automatically shutting off flow as the tank reaches it’s 95% capacity limitation; the “drop-tube” type system is most commonly selected. However, for smaller double-walled tank systems, the cost of this valve is of significant cost in comparison to the overall cost of the complete system and becomes a disincentive.

Overfilling is the leading cause of product release from aboveground tanks so a precautionary equivalent measure must be maintained. During conversations with NFPA technical representatives for the purposes of understanding the logic behind the requirement, it was stated that the discussion within the NFPA 30 standard committee leading to the standard modification was directed at filling practices using tight-fill connections. The language as written in NFPA 30 was not intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, or safety over those prescribed by this code, provided that technical documentation is submitted to the authority having jurisdiction to demonstrate equivalency and the system, method, or device is approved for the intended purpose. Past history has not reflected that utilizing a manual hand operated shut-off nozzle is any less effective in providing overfill protection. NFPA proposed formally submitting this alternative method to the committee for review as a formal interpretation and inclusion in the next edition of NFPA 30.

Because this issue is a general code application under the authority having jurisdiction the department is implementing the following acceptable means to meet the code application via policy, rather than through a site-specific Petition For Variance. Overfill protection systems designed, operated, and maintained in accordance with the following requirements may be acceptable in meeting the intent of NFPA 30, 2.3.2.3.3:

- A. For tank filling operations utilizing a cam-lock type, tight fill connection on secondary containment tanks, the specifications and requirements of NFPA 30, 2.3.2.3.3 shall apply. Appropriate annotation with material lists for plan submittal shall include the requirements as stated in Comm 10.10(4)(13).
- B. For tank filling operations which utilize a manual shutoff nozzle without latching mechanism only, the overfill device installed shall:
 - a. provide both a visual and audible signal (external alarm or vent whistle) to the delivery person
 - b. be located in close proximity to where the delivery person stands during the delivery
 - c. be clearly labeled as a “tank overfill alarm” so the delivery personnel will recognize the device as an overfill alarm
 - d. the plan submittal shall include the appropriate annotation with material lists as stated in Comm 10.10(4)(13).